

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows, substituting any amended claim for the corresponding pending claim:

1 1. (Currently Amended) For use in an oscillator, a two port SAW resonator circuit for
2 providing a tunable low phase noise oscillator signal comprising:

3 a two port SAW resonator;

4 at least one inductance coupled to a port of the SAW resonator, wherein the at least
5 one inductance is connected and sized to ~~approximately tune out~~ reduce tune out a stray capacitance
6 seen at the port within an equivalent circuit for the SAW resonator at a selected frequency such that
7 any residual stray capacitance seen across the inputs or outputs has a magnitude less than a
8 magnitude of a motional capacitance within the equivalent circuit for the SAW resonator; and

9 at least one variable tuning capacitance coupled between the port of the SAW
10 resonator and an input or output port for the SAW resonator circuit, wherein the at least one tuning
11 capacitance forms a series resonance circuit with the SAW resonator and may be selectively
12 employed to alter a resonant frequency of the SAW resonator circuit.

1 2. (Original) The SAW resonator circuit as set forth in Claim 1 wherein the stray capacitance
2 is connected within the equivalent circuit between the port and a ground voltage level and wherein
3 the at least one inductance is connected in parallel with the stray capacitance between the port and
4 the ground voltage level.

1 3. (Original) The SAW resonator circuit as set forth in Claim 1 wherein the at least one
2 inductance coupled to a port of the SAW resonator further comprises:

3 a first inductance coupled to a first port of the SAW resonator, the first inductance
4 connected in parallel with a first stray capacitance seen at the first port within the equivalent circuit
5 for the SAW resonator and sized to approximately tune out the first stray capacitance at the selected
6 frequency; and

7 a second inductance coupled to a second port of the SAW resonator, the second
8 inductance connected in parallel with a second stray capacitance seen at the second port within the
9 equivalent circuit for the SAW resonator and sized to approximately tune out the second stray
10 capacitance at the selected frequency.

1 4. (Currently Amended) ~~The~~ For use in an oscillator, a two port SAW resonator circuit as
2 ~~set forth in Claim 3~~ for providing a tunable low phase noise oscillator signal comprising:

3 a two port SAW resonator;

4 at least one inductance coupled to a port of the SAW resonator, wherein the at least
5 one inductance is connected and sized to approximately tune out a stray capacitance seen at the port
6 within an equivalent circuit for the SAW resonator at a selected frequency; and

7 at least one variable tuning capacitance coupled between the port of the SAW
8 resonator and an input or output port for the SAW resonator circuit, wherein the at least one tuning
9 capacitance forms a series resonance circuit with the SAW resonator and may be selectively
10 employed to alter a resonant frequency of the SAW resonator circuit,

11 wherein the at least one variable tuning capacitance coupled between the port of the
12 SAW resonator and an input or output port for the SAW resonator circuit further comprises:

13 a first varactor diode connected in series between the first port of the SAW resonator
14 and an input port for the SAW resonator circuit; and

15 a second varactor diode connected in series between the second port of the SAW
16 resonator and an output port for the SAW resonator circuit.

1 5. (Previously Presented) The SAW resonator circuit as set forth in Claim 1 wherein
2 adjusting a capacitance of the at least one variable tuning capacitance alters the resonant frequency
3 for the SAW resonator circuit by altering a total capacitance for the series resonator circuit formed
4 by a series resonator within the equivalent circuit for the SAW resonator and the at least one tuning
5 capacitance.

1 6. (Original) ~~The~~ For use in an oscillator, a two port SAW resonator circuit as set forth in
2 ~~Claim 1 further~~ for providing a tunable low phase noise oscillator signal comprising:

3 a two port SAW resonator;

4 at least one inductance coupled to a port of the SAW resonator, wherein the at least
5 one inductance is connected and sized to approximately tune out a stray capacitance seen at the port
6 within an equivalent circuit for the SAW resonator at a selected frequency;

7 at least one variable tuning capacitance coupled between the port of the SAW
8 resonator and an input or output port for the SAW resonator circuit, wherein the at least one tuning
9 capacitance forms a series resonance circuit with the SAW resonator and may be selectively
10 employed to alter a resonant frequency of the SAW resonator circuit; and

11 a load connected to an output port for the SAW resonator circuit, the load providing
12 an impedance lower than an impedance of the stray capacitance seen at the output port within the
13 equivalent circuit for the SAW resonator.

1 7. (Original) The SAW resonator circuit as set forth in Claim 6 wherein the at least one
2 inductance coupled to a port of the SAW resonator further comprises:

3 a single inductance connected in parallel with the stray capacitance at the port of the
4 SAW resonator, wherein no inductance is coupled to another port of the SAW resonator.

1 8. (Currently Amended) An oscillator comprising:
2 an amplifier; and
3 a two port SAW resonator circuit connected in a series loop with the amplifier for
4 providing a tunable low phase noise oscillating signal comprising:
5 a two port SAW resonator;
6 at least one inductance coupled to a port of the SAW resonator, wherein the
7 at least one inductance is connected and sized to ~~approximately tune out~~ reduce tune out a
8 stray capacitance seen at the port within an equivalent circuit for the SAW resonator at a
9 selected frequency such that any residual stray capacitance seen across the inputs or outputs
10 has a magnitude less than a magnitude of a motional capacitance within the equivalent circuit
11 for the SAW resonator; and
12 at least one variable tuning capacitance coupled between the port of the SAW
13 resonator and an input or output port for the SAW resonator circuit, wherein the at least one
14 tuning capacitance forms a series resonance circuit with the SAW resonator and may be
15 selectively employed to alter a resonant frequency of the SAW resonator circuit.

1 9. (Original) The oscillator as set forth in Claim 8 wherein the stray capacitance is connected
2 within the equivalent circuit between the port and a ground voltage level and wherein the at least one
3 inductance is connected in parallel with the stray capacitance between the port and the ground
4 voltage level.

1 10. (Original) The oscillator as set forth in Claim 8 wherein the at least one inductance
2 coupled to a port of the SAW resonator further comprises:

3 a first inductance coupled to a first port of the SAW resonator, the first inductance
4 connected in parallel with a first stray capacitance seen at the first port within the equivalent circuit
5 for the SAW resonator and sized to approximately tune out the first stray capacitance at the selected
6 frequency; and

7 a second inductance coupled to a second port of the SAW resonator, the second
8 inductance connected in parallel with a second stray capacitance seen at the second port within the
9 equivalent circuit for the SAW resonator and sized to approximately tune out the second stray
10 capacitance at the selected frequency.

11. (Original) ~~The~~ An oscillator as set forth in Claim 10 comprising:
an amplifier; and
a two port SAW resonator circuit connected in a series loop with the amplifier for
providing a tunable low phase noise oscillating signal comprising:
a two port SAW resonator;
at least one inductance coupled to a port of the SAW resonator; wherein the
at least one inductance is connected and sized to approximately tune out a stray capacitance
seen at the port within an equivalent circuit for the SAW resonator at a selected frequency,
wherein the at least one inductance further comprises:
a first inductance coupled to a first port of the SAW resonator, the
first inductance connected in parallel with a first stray capacitance seen at the first
port within the equivalent circuit for the SAW resonator and sized to approximately
tune out the first stray capacitance at the selected frequency; and
a second inductance coupled to a second port of the SAW resonator,
the second inductance connected in parallel with a second stray capacitance seen at
the second port within the equivalent circuit for the SAW resonator and sized to
approximately tune out the second stray capacitance at the selected frequency; and
at least one variable tuning capacitance coupled between the port of the SAW
resonator and an input or output port for the SAW resonator circuit, wherein the at least one

20 tuning capacitance forms a series resonance circuit with the SAW resonator and may be
21 selectively employed to alter a resonant frequency of the SAW resonator circuit.

22 wherein the at least one variable tuning capacitance coupled between the port of the
23 SAW resonator and an input or output port for the SAW resonator circuit further comprises:

24 a first varactor diode connected in series between the first port of the SAW
25 resonator and an input port for the SAW resonator circuit; and

26 a second varactor diode connected in series between the second port of the
27 SAW resonator and an output port for the SAW resonator circuit.

1 12. (Previously Presented) The oscillator as set forth in Claim 8 wherein adjusting a
2 capacitance of the at least one variable tuning capacitance alters the resonant frequency for the SAW
3 resonator circuit by altering a total capacitance for the series resonator circuit formed by a series
4 resonator within the equivalent circuit for the SAW resonator and the at least one tuning capacitance.

1 13. (Currently Amended) ~~The~~ An oscillator ~~as set forth in Claim 8~~ further comprising:
2 an amplifier; and
3 a two port SAW resonator circuit connected in a series loop with the amplifier for
4 providing a tunable low phase noise oscillating signal comprising:
5 a two port SAW resonator;
6 at least one inductance coupled to a port of the SAW resonator, wherein the
7 at least one inductance is connected and sized to approximately tune out a stray capacitance
8 seen at the port within an equivalent circuit for the SAW resonator at a selected frequency;
9 and
10 at least one variable tuning capacitance coupled between the port of the SAW
11 resonator and an input or output port for the SAW resonator circuit, wherein the at least one
12 tuning capacitance forms a series resonance circuit with the SAW resonator and may be
13 selectively employed to alter a resonant frequency of the SAW resonator circuit; and
14 a load connected to an output port for the SAW resonator circuit, the load providing
15 an impedance lower than an impedance of the stray capacitance seen at the output port within the
16 equivalent circuit for the SAW resonator.

1 14. (Original) The oscillator as set forth in Claim 13 wherein the at least one inductance
2 coupled to a port of the SAW resonator further comprises:

3 a single inductance connected in parallel with the stray capacitance at the port of the
4 SAW resonator, wherein no inductance is coupled to another port of the SAW resonator.

1 15. (Currently Amended) For use in an oscillator, a method of tuning a SAW resonator
2 circuit while maintaining low phase noise comprising the steps of:

3 applying an input signal to a port for a two port SAW resonator, ~~wherein the port~~
4 having an inductance coupled thereto, the inductance sized and connected to reduce a stray
5 capacitance seen within an equivalent circuit for the SAW resonator at the port ~~is approximately~~
6 ~~tuned-out~~ at a selected frequency such that any residual stray capacitance seen at the port has a
7 magnitude less than a magnitude of a motional capacitance within the equivalent circuit for the SAW
8 resonator; and

9 adjusting a total capacitance for a series resonator circuit formed by a ~~series resonator~~
10 a motional capacitance, a motional inductance and a motional resistance within the equivalent circuit
11 for the SAW resonator and at least one variable tuning capacitance connected between the port and
12 an input or output port for the SAW resonator circuit.

1 16. (Currently Amended) The method of claim 15 ~~further comprising:~~

2 ~~exciting at least one inductance coupled to the port of the SAW resonator, wherein~~
3 the ~~at least one~~ inductance is connected and sized to approximately tune out the stray capacitance
4 at the selected frequency.

1 17. (Currently Amended) The method of claim 16, ~~wherein the step of exciting at least one~~
2 ~~inductance coupled to the port of the SAW resonator further comprises~~ comprising:

3 exciting a first inductance connected at a first port for the SAW resonator in parallel
4 with a first stray capacitance seen within the equivalent circuit for the SAW resonator at the first port
5 and sized to approximately tune out the first stray capacitance at the selected frequency; and

6 exciting a second inductance connected at a second port for the SAW resonator in
7 parallel with a second stray capacitance seen within the equivalent circuit for the SAW resonator at
8 the second port and sized to approximately tune out the second stray capacitance at the selected
9 frequency.

1 18. (Currently Amended) The method of claim 15 ~~wherein the step of adjusting a total~~
2 ~~capacitance for a series resonator circuit formed by a series resonator within the equivalent circuit~~
3 ~~for the SAW resonator and at least one variable tuning capacitance connected between the port and~~
4 ~~an input or output port for the SAW resonator circuit further comprises~~ comprising:
5 altering a voltage applied to a varactor diode forming the at least one tuning
6 capacitance.

1 19. (Original) The method of claim 15 further comprising:
2 employing an oscillator including the SAW resonator circuit.

1 20. (Original) The method of claim 19 further comprising:
2 altering a frequency at which the oscillator oscillates by adjusting the total capacitance
3 for the series resonator circuit.

Please add the following new claim:

21. (Newly Added) For use in an oscillator, a two port SAW resonator circuit for providing low phase noise in hostile environments comprising:

a two port SAW resonator;

at least one inductance coupled to a port of the SAW resonator; and

at least one variable tuning capacitance coupled between the port of the SAW resonator and an input or output port for the SAW resonator circuit, and

wherein the at least one inductance is connected and sized to increase a tune range of a resonant circuit formed by a motional capacitance, a motional inductance and a motional resistance within an equivalent circuit for the SAW resonator and the at least one variable capacitance.